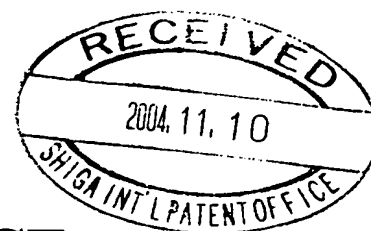


PATENT COOPERATION TREATY



From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

To:

SHIGA Masatake

**2-3-1, Yaesu, Chuo-ku, Tokyo
104-8453 Japan**

Date of mailing
(day/month/year)

09.11.2004

Applicant's or agent's file reference

PC-9272

FOR FURTHER ACTION

See paragraph 2 below

International application No.

PCT/JP2004/015007

International filing date (day/month/year)

05.10.2004

Priority date (day/month/year)

06.10.2003

International Patent Classification (IPC) or both national classification and IPC

Int.Cl. **G11B 5/65, 5/738, 5/851**

Applicant

Kabushiki Kaisha Toshiba

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

<p>Name and mailing address of the ISA/JP</p> <p style="text-align: center;">Japan Patent Office</p> <p>3-4-3, Kasumigaseki, Chiyoda-ku, Tokyo 100-8915, Japan</p>	<p>Authorized officer</p> <p style="text-align: center;">MASANORI TACHIBAN</p> <p>Telephone No. +81-3-3581-1101 Ext. 3550</p>
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5D 3045

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/JP 2004/015007

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This opinion has been established on the basis of a translation from the original language into the following language _____, which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).

2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

a. type of material

- ☐ a sequence listing
☐ table(s) related to the sequence listing

b. format of material

- ☐ in written format
☐ in computer readable form

c. time of filing/furnishing

- ☐ contained in the international application as filed.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/JP2004/ 015007

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	<u>1 - 20</u>	YES
	Claims		NO
Inventive step (IS)	Claims	<u>1 - 20</u>	YES
	Claims		NO
Industrial applicability (IA)	Claims	<u>1 - 20</u>	YES
	Claims		NO

2. Citations and explanations

Concerning claims 1-20

D1:JP 9-204651 A(TOKYO SHIBAURA ELECTRIC CO.)
1997.08.05 SEE WHOLE DOCUMENT (Family: none)
D2:JP 2001-351217 A(FUJITSU LTD.)
2001.12.21 SEE WHOLE DOCUMENT (Family: none)
D3:JP 2001-43526 A(FUJI ELECTRIC CO., LTD.)
2001.02.16 SEE WHOLE DOCUMENT (Family: none)
D4:JP 2002-83411 A(SONY CORP.)
2002.03.22 SEE WHOLE DOCUMENT (Family: none)
D5:JP 2002-208129 A(HITACHI MAXELL LTD.)
2002.07.26 SEE WHOLE DOCUMENT & WO 02/39433 A1 & US 2003/215675 A1
D6:JP 2000-182233 A(MATSUSHITA ELECTRIC IND. CO., LTD.)
2000.06.30 SEE WHOLE DOCUMENT (Family: none)
D7:JP 2002-25030 A(HITACHI LTD.)
2002.01.25 SEE WHOLE DOCUMENT (Family: none)
D8:JP 2001-14662 A(HITACHI MAXELL LTD.)
2001.01.19 SEE WHOLE DOCUMENT (Family: none)
D9:JP 5-143953 A(KOBE STEEL LTD.)
1993.06.11 SEE WHOLE DOCUMENT (Family: none)
D10:JP 2003-36525 A(FUJI ELECTRIC CO., LTD.)
2003.02.07 SEE WHOLE DOCUMENT (Family: none)
D11:JP 2002-260209 A(HITACHI LTD.)
2002.09.13 SEE WHOLE DOCUMENT & US 2002/172842 A1
D12:JP 2003-123245 A(SHOWA DENKO K.K.)
2003.04.25 SEE WHOLE DOCUMENT & US 2003/170500 A1
D13:JP 2002-334424 A(SHOWA DENKO K.K.)
2002.11.22 SEE WHOLE DOCUMENT (Family: none)
D14:JP 2002-329305 A(SHOWA DENKO K.K.)
2002.11.15 SEE WHOLE DOCUMENT (Family: none)

Claims 1-20 meet the requirements with respect to novelty and inventive step.
D1-D14 do not disclose the grain boundaries contain an oxide of silicon and at least one element selected from the group consisting of Li, Na, K, Rb, Cs, Ca, Sr, and Ba, and the ratio of a total amount of substance of Si, Li, Na, K, Rb, Cs, Ca, Sr, and Ba in the perpendicular magnetic recording layer is no less than 1 mol% and no more than 20 mol%.